

Notice of Allowability

Application No.

09/788,428

Examiner

Robert A. Siconolfi

Applicant(s)

HARITA ET AL.

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3683

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to ____.
2. ☒ The allowed claim(s) is/are 2-5,7,8 and 11-15.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date ____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date ____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other ____. |

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Barlow on 9/27/06.

The application has been amended as follows:

Claim 2. A bearing holding structure comprising:

a bearing whose outer circumferential surface is formed in a spherical shape;

first and second members having holding surfaces which extend axially in opposite directions to each other and between which the bearing is sandwiched, each of the holding surfaces being tapered axially to expand straight toward the opposing holding surface, wherein the first and second members have fixing surfaces which extend radially from the holding surfaces, respectively;

a fastening structure on each of the fixing surfaces, wherein the fastening structures allow radial and relative movement of at least one of the first and second members with respect to the other of the first and second members prior to fastening the fastening structures for adjusting an axial alignment among the first and second members and the bearing, when the fixing surfaces come in contact with each other for sandwiching the bearing between the holding surfaces, and wherein the fixing surfaces

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are fixed to each other by deforming at least one of the fastening structure after the alignment to inhibit the radial and relative movement so that first and second members rigidly hold the bearing.

Claim 3. A bearing holding structure according to claim 2, wherein the fastening structures include at least a projection on one of the fixing surfaces and at least an aperture on the other of the fixing surfaces, the projection being engaged with the aperture so as to be able to slightly move therein, when the fixing surfaces come in contact with each other in advance, and, then, being deformed partly after having secured the axial alignment so that the fixing surfaces are fixed to each other.

Claim 7. A motor comprising:

- a cylinder-shaped yoke having an opening at an axial end thereof;

- a plurality of magnets fixed to an inner circumference of the yoke;

- a rotor disposed in a space of the yoke on an inner side of the magnets;

- an end plate fixed to the opening, the end plate having an axially outwardly extending holding surface;

- a bearing disposed in a center of the end plate for rotatably holding the rotor, wherein an outer circumferential surface of the bearing is spherical;

- a holding plate having axially inwardly extending holding surface, wherein the holding surfaces of the end plate and the holding plate are opposed to each other so that the bearing is sandwiched between the end plate and the holding plate, and each of the holding surfaces is tapered axially to expand straight toward the opposing holding

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surface, wherein the end and holding plates have fixing surfaces which extend radially from the holding surfaces, respectively; and

a fastening structure on each of the fixing surfaces, wherein the fastening structures allow radial and relative movement of at least one of the first and second members with respect to the other of the first and second members prior to fastening the fastening structures to adjust an axial alignment among the end and holding plates and the bearing, when the fixing surfaces come in contact with each other for sandwiching the bearing between the holding surfaces and, then, are fixed to each other by deforming at least one of the fastening structure after the alignment to inhibit the radial and relative movement so that the end and holding plates hold the bearing.

Claim 11. A method of holding a bearing that is self aligning, the method comprising:

providing a first member and a second member having holding surfaces, which extend axially in opposite directions to each other, each of the holding surfaces being tapered axially to expand straight toward the opposing holding surface; and

sandwiching the bearing between the holding surfaces of the first member and the second member, wherein the first member and second member further have fixing surfaces which extend radially from the holding surfaces

moving the first member and the second member toward each other until the fixing surfaces come in contact with each other, thereby performing the sandwiching, and

allowing a radial and relative movement of the first member and the second member with a fastener structure formed on each of the first and second fixing surfaces

for adjusting axial alignment of the first member and the second member and the bearing,

when the fixing surfaces come in contact with each other and after the allowing a radial and relative movement of at least one of the first and the second members with respect to the other of the first and second members, fixing the first member and the second member to each other by deforming at least one of the fastener structures to inhibit the radial and relative movement so that first and second members rigidly hold the bearing in alignment.

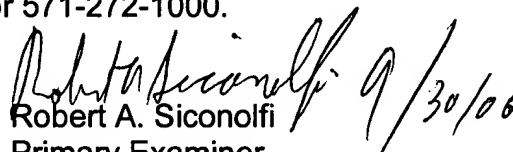
Claim 12. The method of holding a bearing of claim 11 further including providing one of the fixing surfaces with at least a projection and another of the fixing surfaces with at least an aperture to serve as the fastening structures, the projection being engaged with the aperture so as to be able to move therein when the fixing surfaces come in contact with each other, thereby providing for the adjusting the axial alignment among the first member and the second member and the bearing.

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2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert A. Siconolfi whose telephone number is 571-272-7124. The examiner can normally be reached on M-F 10 am-3 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James McClellan can be reached on 571 272-6786. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Robert A. Siconolfi
Primary Examiner
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